

MUSCLES OF THE GLUTEAL REGION

CN: In the posterior and lateral views (superficial dissections), the upper fibers of the iliotibial tract (*) have been cut away, exposing gluteus medius. (1) Color each muscle in all views, including the directional arrows, before going on to the next. The origin of piriformis (E) cannot be seen in these views, but see Plate 52. A better view of the origin of obturator internus (F) also can be seen on Plate 52.

3 GLUTEAL MUSCLES:

GLUTEUS MAXIMUS_A

GLUTEUS MEDIUS_B

GLUTEUS MINIMUS_C

TENSOR FASCIAE LATAE_D

The gluteal muscles are arranged in three layers: the most superficial is *gluteus maximus*. The large sciatic nerve runs deep to it, as every student nurse has learned well. Its thickness varies. Gluteus maximus extends the hip joint during running and walking up-hill, but does not act in relaxed walking. The intermediately placed, more lateral *gluteus medius* is a major abductor of the hip joint and an important stabilizer (leveler) of the pelvis when the opposite lower limb is lifted off the ground.

6 DEEP, LATERAL ROTATORS:

PIRIFORMIS_E

OBTURATOR INTERNUS_F

OBTURATOR EXTERNUS_G

QUADRATUS FEMORIS_H

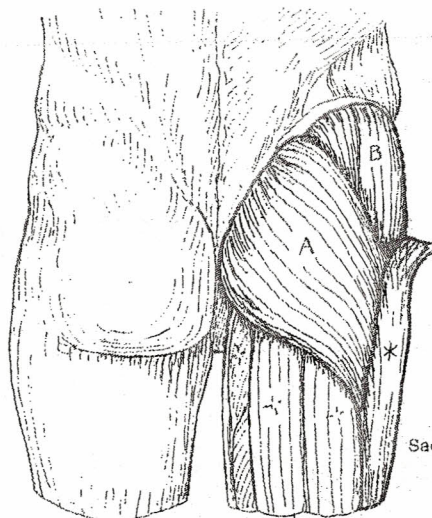
GEMELLUS SUPERIOR_I

GEMELLUS INFERIOR_J

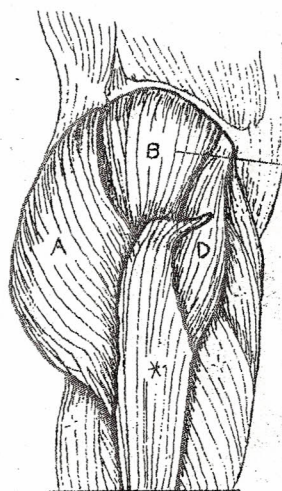
The deepest layer of gluteal muscles is the *gluteus minimus* and the *lateral rotators* of the hip joint. They cover up/fill the greater and lesser sciatic notches. These muscles generally insert at the posterior aspect of the greater trochanter of the femur. The gluteal muscles (less gluteus maximus) correspond to some degree with the rotator cuff of the shoulder joint: lateral rotators posteriorly, abductor (*gluteus medius*) superiorly, medial rotators (*gluteus medius* and *minimus*, *tensor fasciae latae*) anteriorly.

ILIOTIBIAL TRACT*

The iliotibial tract, a thickening of the deep fascia (fascia lata) of the thigh, runs from ilium to tibia and helps stabilize the knee joint laterally. The muscle *tensor fasciae latae*, a frequently visible and palpable flexor and medial rotator of the hip joint, inserts into this fibrous band, tensing it. Despite its major flexor function, this anterolaterally-placed muscle is considered a part of the more posterior gluteal group; it shares its insertion into the iliotibial tract with *gluteus maximus*, and it is supplied by the superior gluteal nerve and artery.



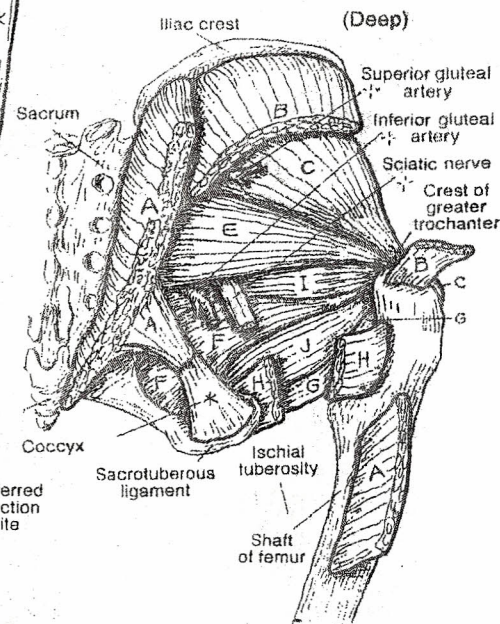
(Superficial)



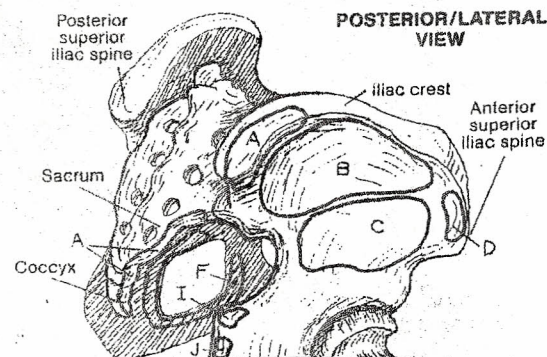
LATERAL VIEW

(Superficial)

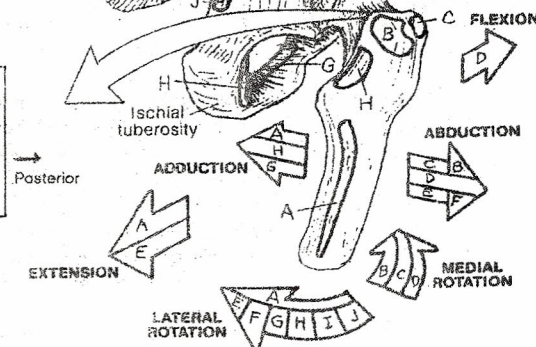
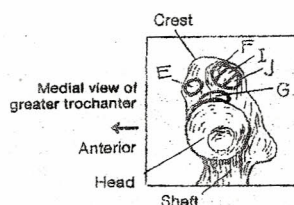
POSTERIOR VIEW



(Deep)



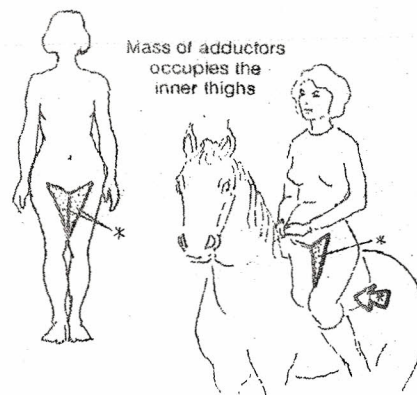
POSTERIOR/LATERAL VIEW



MUSCLES OF THE MEDIAL THIGH

CN: Color one muscle at a time in the five main views before going to the next one. Note that the attachment sites on the posterior surface of the femur are represented by dotted lines.

PECTINEUS_A
ADDUCTOR BREVIS:
ADDUCTOR LONGUS:
ADDUCTOR MAGNUS:
GRACILIS:
OBTURATOR EXTERNUS:



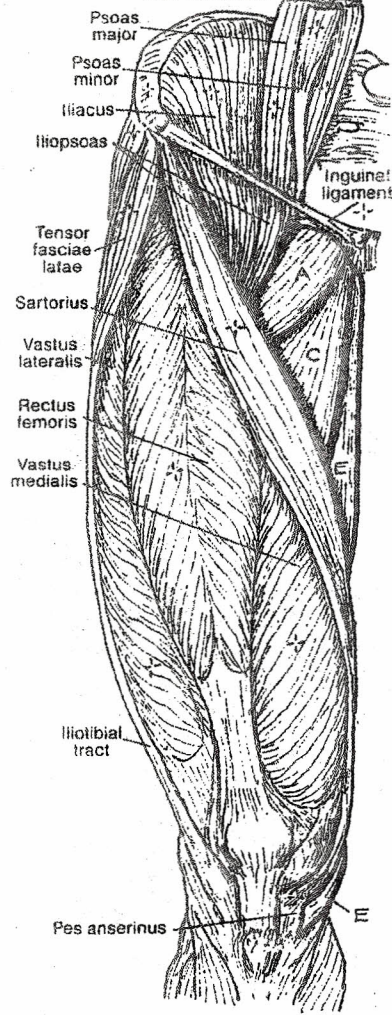
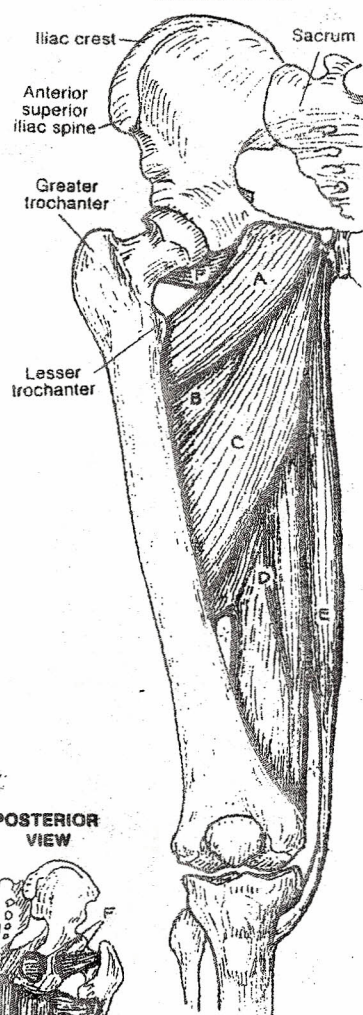
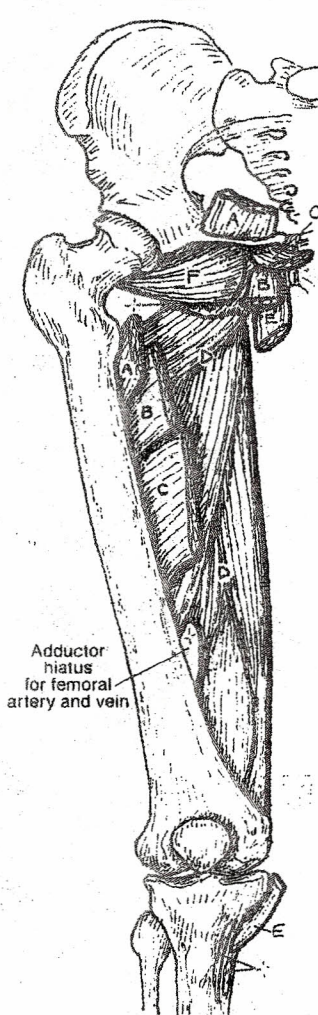
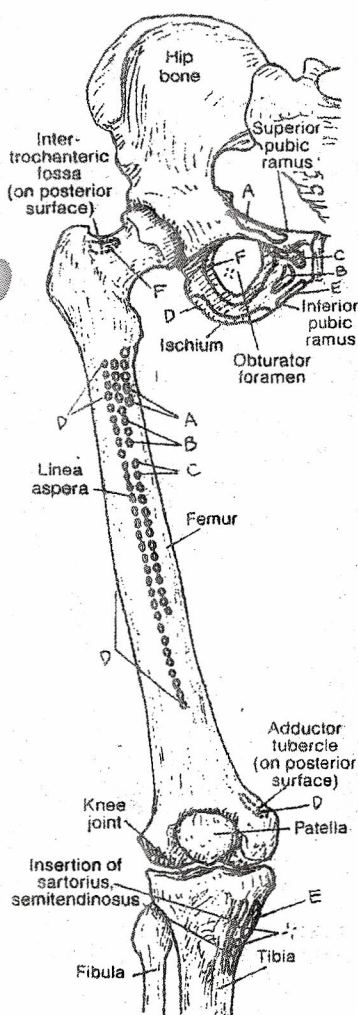
ANTERIOR VIEW

ATTACHMENT SITES

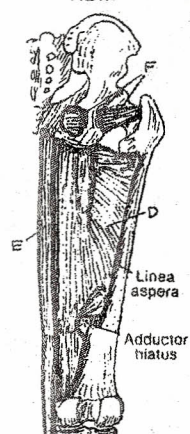
DEEP

INTERMEDIATE

SUPERFICIAL



POSTERIOR VIEW



The medial thigh muscles consist of the hip joint adductors (A through E) and *obturator externus*, a lateral rotator of that joint. The latter was colored on Plate 61 as one of the deep gluteal muscles, as its tendon passes into that region. However, it is compartmentalized by fasciae in the medial thigh, covers the external surface of the obturator foramen in the deep upper medial thigh, and receives the same innervation as the adductors. The *gracilis* is the long-

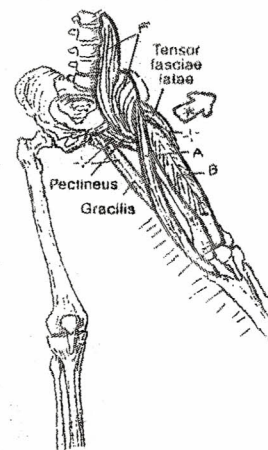
(flexing it), and inserts only on the medial tibia; its tendon joins the tendons of sartorius and semitendinosus to form an insertion shaped like a goose's foot (hence called the pes anserinus). The *adductor magnus* is the most massive of the group (see posterior view). In its lower half, adductor magnus fibers give way to the passage of the femoral vessels (adductor hiatus). All the adductors, except *gracilis*, insert on the vertical rough line (linea aspera) on the

MUSCLES OF THE ANTERIOR THIGH

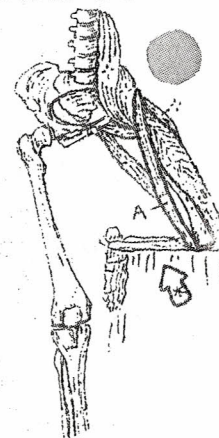
SARTORIUS_AQUADRICEPS FEMORIS₊RECTUS FEMORIS₊VASTUS LATERALIS₊VASTUS INTERMEDIUS₊VASTUS MEDIALIS_EILIOPSOAS_FPATELLAR LIGAMENT_{G*}

CN: The patellar ligament (G*) is colored gray but the patella is left uncolored.
 (1) Begin with the deep view of the thigh and then complete the superficial view. (2) On the far left, color the visualized portions of the quadriceps that are antagonists to the hamstring group. (3) Complete the action diagrams along the right margin.

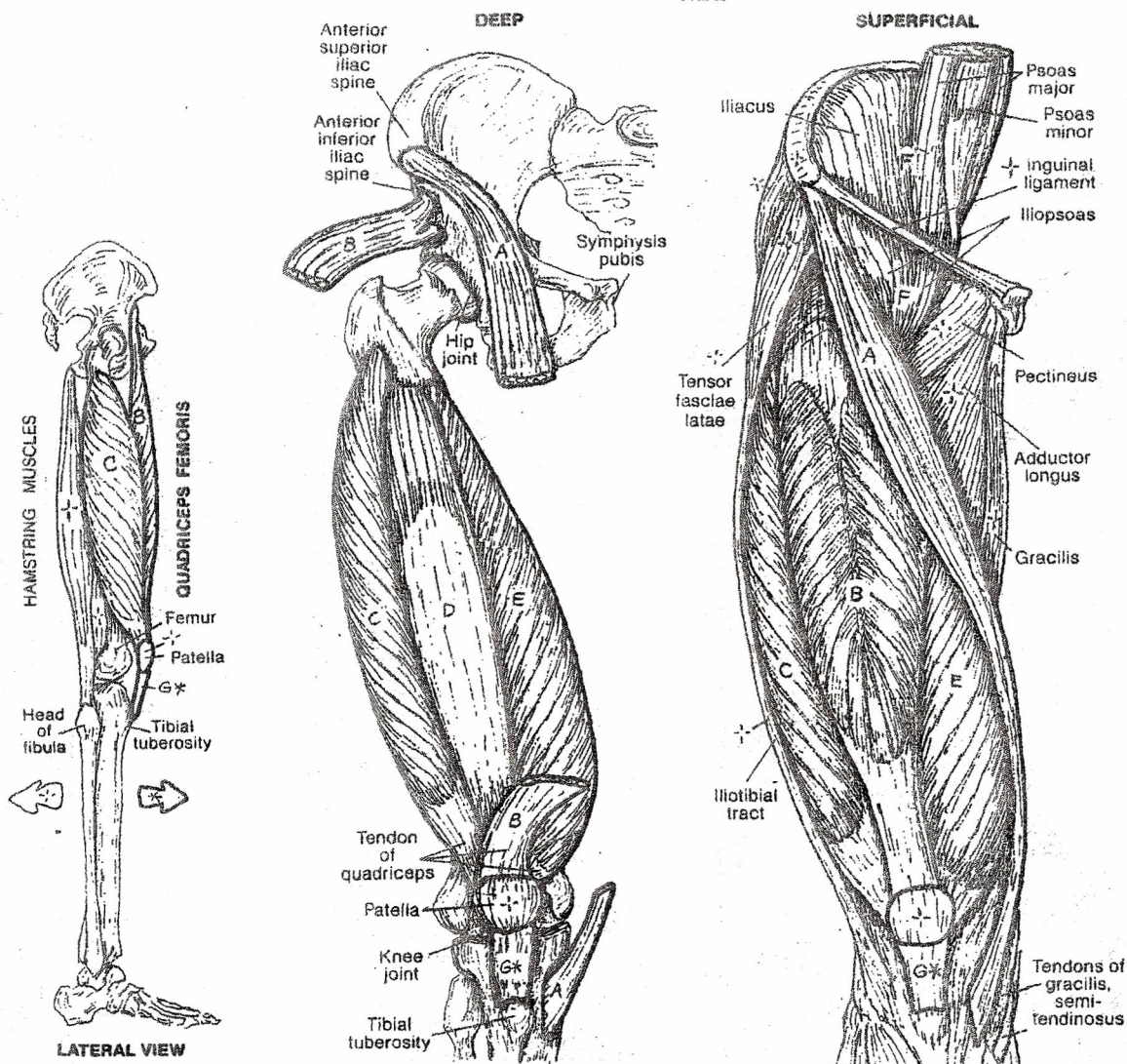
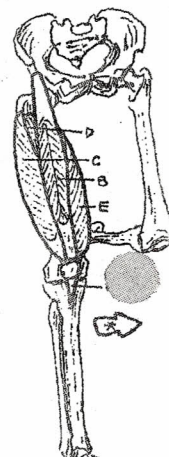
FLEXORS OF THE HIP JOINT*



FLEXOR OF THE KNEE JOINT.



EXTENSORS OF THE KNEE JOINT



The sartorius ("tailor's" muscle; so-called because of the role of this muscle in enabling a crossed-legs sitting posture) is a flexor and lateral rotator of the hip joint and a flexor of the knee joint, as you can infer from its illustrated attachments.

The quadriceps femoris muscle arises from four heads. The vastus medialis and lateralis arise from the linea aspera on the posterior aspect of the femur; the vastus intermedius arises from the anterior femoral shaft. All four converge onto the superior aspect (base) of the patella to form the patellar tendon. Some tendon fibers continue over the patellar surface to join the ligament below. At the inferior aspect (apex) of the

The tendon between the patella and the tibial tuberosity is called the patellar ligament. Rectus femoris, a strong hip joint flexor, is the only member of quadriceps to cross that joint. Quadriceps femoris is the only knee extensor. The significance of its role becomes crystal clear to those having experienced a knee injury; the muscles tend to atrophy and weaken rapidly with disuse, and "quad" exercises are essential to maintain structural stability of the joint. The iliopsoas is the most powerful flexor of the hip, having a broad thick muscle belly and attaching at the lesser trochanter at the proximal end of the femoral shaft. Recall Plate 50 for its

MUSCLES OF THE POSTERIOR THIGH

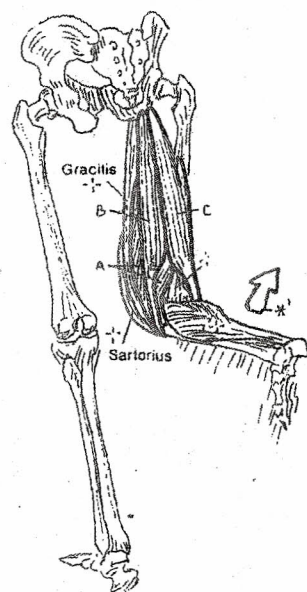
HAMSTRINGS*

SEMIMEMBRANOSUS_A

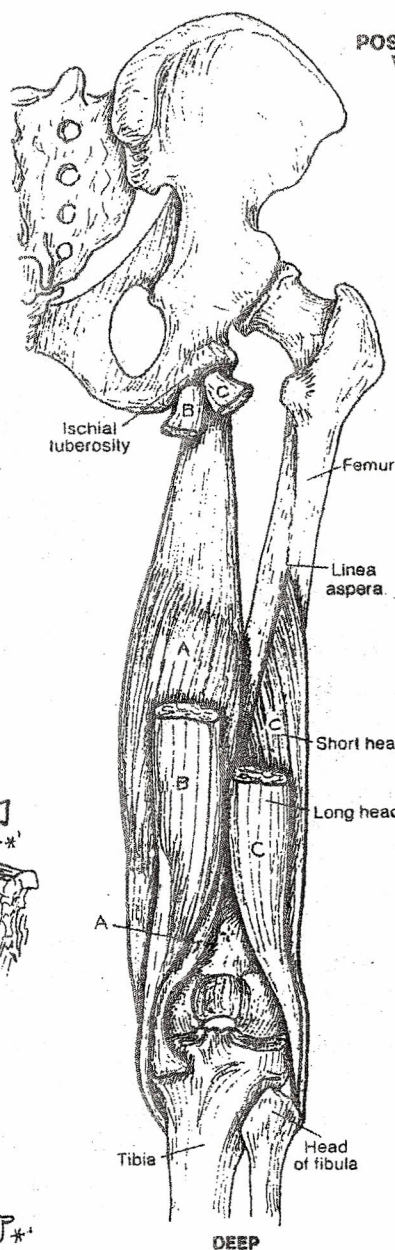
SEMITENDINOSUS_B

BICEPS FEMORIS_C

CN: (1) Color each hamstring muscle in the deep view before going on to the superficial. Then color the diagrams of flexion and extension. (2) Color gray the outline of the muscles in the drawings at upper right.

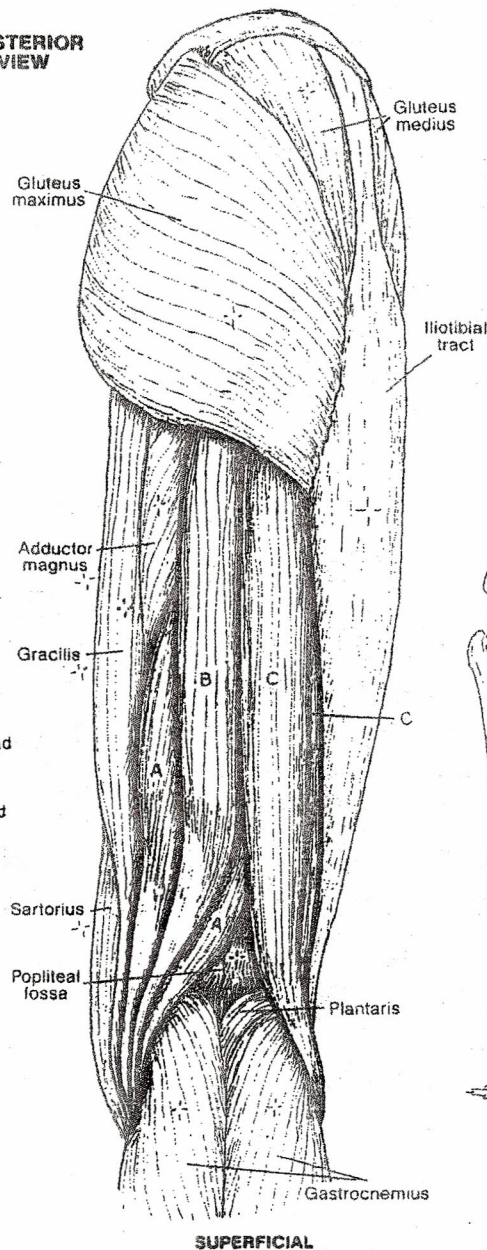


FLEXORS OF THE KNEE JOINT*



DEEP

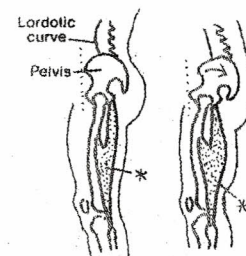
POSTERIOR VIEW



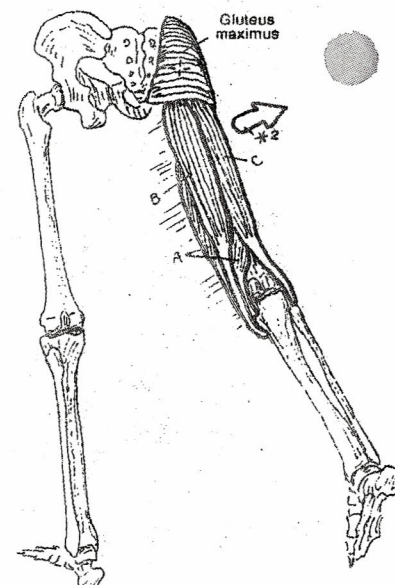
SUPERFICIAL



Tight hamstrings limit flexion of hip when knee joint is extended.



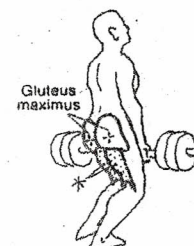
Tight hamstrings (at right) tilt pelvis backwards, flattening lordotic curve of lower back.



EXTENSORS OF THE HIP JOINT*

The hamstring muscles are equally effective at both extension of the hip joint and flexion of the knee joint. Unlike the hip extensor gluteus maximus, the hamstrings are active during normal walking. In relaxed standing, both gluteus maximus and the hamstrings are inactive. In knee flexion, the hamstrings act in concert with sartorius, gracilis, and gastrocnemius (Plates 63 and 66). Long tendons of the hamstrings can be palpated just above the partially flexed knee on either side of the midline.

Reduced hamstring stretch ("tight hamstrings") limits hip flexion with the knee extended; flexion of the knee permits increased hip flexion. Try this on yourself. Tight hamstrings, by their ischial origin, pull the posterior pelvis down, lengthening the erector spinae muscles and flattening the lumbar lordosis, potentially contributing to limitation of lumbar movement and back pain. Tight hamstrings often cause posterior thigh pain on straight leg raise testing (subject is supine, lower limbs horizontal; one heel is lifted, progressively flexing the hip joint with knee extended). This pain from muscle stretch



Powerful extensors of the hip joints.